The Northwest Technology Transfer Center
BULLETIN
Number 76 Fall 92
A Newsletter of the Local Technical Assistance Program (LTAP)

INSIDE



*Please check mailing on back. If incorrect, please contact Donna Stallings at the Center.*

# Keeping Up-to-Date in a Changing World

*by George Crommes, P.E.*

## Foreword

Winston Churchill was a man renowned for his succinct and eloquent statements. At one time he noted:

"The most important thing about education is appetite. Education does not begin with the university and it certainly ought not to end there."

## Appetite for Learning

If we agree with Churchill, "appetite" for learning is the key to one's search for truth and knowledge. This need for an appetite for education is as important today as in the 1930s and 1940s. What is different is the greater amount of information that is available today than in Churchill's time. Because of the abundance of information, we are forced to maximize our efforts in selection of the materials and information that we need in our everyday life. This means setting priorities on our informational needs and yet retaining our appetite for learning that we all had once.

Keep in mind that some people are more hungry than others for learning or bettering their skills, but most everyone feels good about a "job well done" using existing or newly acquired skills and abilities.

## Budgeting Our Most Precious Resource

In addition to having an appetite for learning, success at learning can only occur if we are successful in budgeting our time. "Quality time" is extremely important and can only be made available if we learn to sort out conflicting demands on our time and budget accordingly. Most of us make good efforts to keep up-to-date on social events, politics, or sports events on a daily or weekly basis. This is interesting and useful for our everyday communication, but we should broaden our pursuit of knowledge if our appetite for learning is to be satisfied.

"Too little time" seems to be the complaint of many. Yet we all waste time on trivial pursuits or perhaps things that could be done with less time. We need to match the amount of time with the importance to us of the effort. For example, if one wishes to be a better supervisor, he/she should be willing to devote time for improving his/her supervisory skills whether it be by attending class, on the job participation and evaluation of his/her own efforts, by extra reading, or a combination of these. Just wishing that one can learn more or be a better supervisor will not provide results without a little perspiration.

## Networking with Others

By sharing what we have observed, read, or heard with others further enhances the understanding of a particular subject and hence our comprehension of new information and different viewpoints. Realizing that no one has a monopoly on information or knowledge, networking provides a way to quickly broaden our knowledge base.

## Summary

Being knowledgeable and "up-to-date" can be a challenge that is readily accepted by those with an appetite for learning. As in the past, keeping abreast of our careers involves: (1) having an appetite for learning, (2) budgeting one's time to maximize "quality time," and (3) networking with others by sharing ideas and opinions and thereby enhancing one's education and skills development.

# In the News

## Roadside Safety Accident Research Needs Being Identified

Run-off-the-road accidents account for 30 percent of all harm caused in traffic crashes. The importance of this problem has been well known for some time. Significant research has been directed at developing crashworthy roadside safety structures such as impact attenuators, breakaway sign and luminaire supports, and improved traffic railings. The development of a model for cost-effective analyses of roadside design alternatives is a major component of FHWA's Highway Safety Design research program.

Critical gaps in the state of knowledge relating to such models have been identified in an active research study on the "Development of Roadside Safety Data Collection Plan." As part of this effort, an expert panel met in April to review a draft data collection and analysis plan. The results of this effort will be used to select and design accident research studies to support the development of a roadside safety model.

*(Source: FHWA's "Transporter," July 1992.)*

## Repairing Vandalized Signs

Spray paint can be removed without damage to a sign face. First step, assume the paint sprayed on is an enamel-based paint. Wipe the sprayed area lightly with a soft cloth moistened with mineral spirits (for example, toluene). Continue wiping lightly until the spray paint is removed. If this does not work, then go on to the next step.

Second step, assume the paint sprayed on the sign is a lacquer-based paint. Wipe the sprayed area lightly with a soft cloth moistened with lacquer thinner. Continue wiping lightly until the spray paint is removed.

Both steps are not supposed to damage sign face material. It is a good idea to make a nighttime reflectivity check or visual inspection of all signs from which you have removed spray paint.

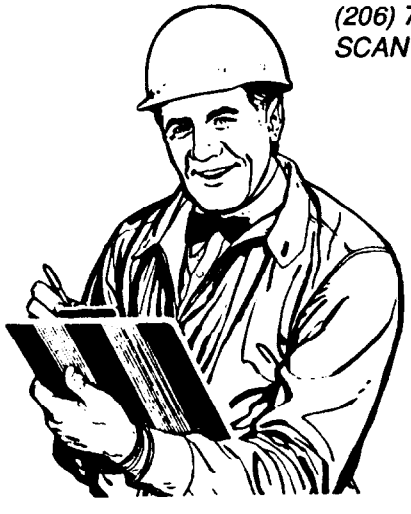
Special fasteners can be used to attach signs to support posts making it far more difficult for vandals to remove signs. Among these are Teenut pallet fasteners, blind aluminum rivets, Tuffnuts, and Vandgard nuts. Sign inventory and maintenance records can help identify areas where it is a good idea to consider using these theft-resistant sign fasteners.

*(Source: Maintenance of Small Traffic Signs, FHWA. Reprinted from "Technology Transfer Quarterly," Spring 1992, Ohio State University.)*

### Need to know more?

**Contact WSDOT's Library (a free T² resource)**

*(206) 753-2107*
*SCAN 234-2107*



## Milk Cartons into Barricades

Recycled plastic milk containers are being used to make highway barricades in Illinois. The Illinois Department of Transportation (IDOT) approved the barricades for use throughout the state. *SafetyCade* barricades are the first commercial product resulting from a plastic recycling development partnership between IDOT, the Illinois Department of Energy and Natural Resources, and DuPont. Each *SafetyCade* is manufactured by WLI Inc. for the DuPont Company from about 100 recycled plastic milk containers.

*(Source: Roads & Bridges magazine, May 1991.)*

## USFS Calls for Proposals for Timber Bridges

The USDA Forest Service will again coordinate the National Timber Bridge Initiative in 1993. The initiative strives to improve rural transportation networks and expand the range of markets for wood products through research, technology transfer, and the Timber Bridge Demonstration Program. A majority of the initiative's funds are used to share the cost of modern timber bridge projects at the county level. In the previous four years, 223 timber bridges in 48 states have been partially funded through this program.

State and local agencies are encouraged to participate in the Demonstration Program by submitting a bridge construction proposal that addresses seven criteria which are used for selecting projects. These criteria include: structural integrity, benefits to the local economy, visibility and publicity, case history, and cost competitiveness. Selected projects will receive from $30,000 to $60,000 to help share bridge costs. Proposals must be completed before November 16, 1992.

For additional information, or to request a project application package, contact:

Bill Von Segen
USDA Forest Service
P.O. Box 3623
Portland, OR 97208
(503) 326-2729

## FHWA Proposes Vision Waiver Program

FHWA's Office of Motor Carriers (OMC) has proposed a program to waive certain visually impaired commercial motor vehicle operators from the federal vision standard. Drivers would have to meet stringent criteria, including having sufficient driving experience and a safe driving record. To date, OMC has received more than 1,000 applications for waiver under the proposal and is conducting a thorough review of each application. The first vision waiver was expected to be issued in mid-July. Neill Thomas, (202) 366-2983.

*(Source: FHWA's "Transporter," July 1992.)*

# Fluorescent Pigments in Traffic Control Devices?

Safety, mobility, and traffic efficiency can be greatly improved by making signs more conspicuous, thereby increasing drivers' ability to detect traffic signs and anticipate steering requirements farther down the roadway. A large proportion of single vehicle accidents, especially those that involve a vehicle leaving the intended lane of travel, is likely to result from the lack of necessary guidance information. Section 6B-1 of the *Manual on Uniform Traffic Control Devices* recognizes that the introduction of fluorescent pigments into retroreflective materials can increase the conspicuousness of a traffic control device under daylight conditions, particularly when it is cloudy or dawn/dusk. Fluorescent pigments are highly conspicuous because they absorb ultraviolet radiation and shorter wavelength — visible radiation normally present in daylight — and reradiate it as visible light at a longer wavelength. However, little fluorescent material is used because of the very short service life.

To determine the feasibility of wider use of fluorescent materials in traffic control devices, FHWA initiated research in this area. One of the objectives of the research is to determine if stable, long-life, and economical fluorescent pigments compatible with retroreflective systems are available and suitable for traffic control applications. The other objective is to determine what specific information is needed to decide if fluorescent materials should be used on traffic control devices in general applications, or specifically at construction sites, or for incident management.

Fluorescent materials would most likely be helpful for (1) adverse weather conditions; (2) improving the visibility of traffic control devices covered by thin layers of dew, frost, or snow; and (3) normal night driving conditions if ultraviolet headlamps (currently being experimented with by some vehicle manufacturers to reduce headlamp glare problems) are adopted. The researchers for the study will investigate the durability of alternative pigment materials, their safety and possible environmental impacts, and the potential cost-benefit of fluorescent traffic controls.

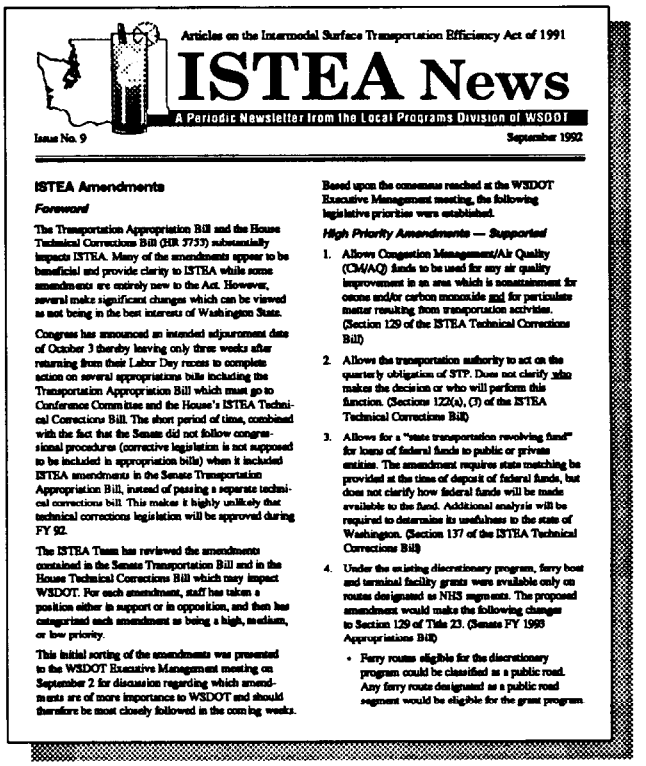
*(Source: FHWA's "Transporter," July 1992.)*

# The ISTEA News

Since mid-June of 1992, the Local Programs Division via the T² Center has published at random intervals a newsletter entitled *ISTEA News*. The prime purpose of the newsletter is to inform local agencies, by plain language, the various aspects of the new law. The ninth issue was sent to the printer at the end of September. Overall, the newsletter has been well received by state and local agencies. We have even received compliments from others in the publishing business.

Tom Kuennen, editor of *Roads and Bridges* magazine, complimented WSDOT at the recent National T² Conference in Lexington, Kentucky on its *ISTEA News*. He noted that the newsletter provides timely information on a subject that directly impacts local government. He said that the state of Washington has taken the initiative in "getting the word out" and other T² Centers could benefit from Washington's example.

Presently over 1,000 copies of each issue are mailed to staff and officials of public agencies.



Articles on the Intermodal Surface Transportation Efficiency Act of 1991

ISTEA News

A Periodic Newsletter from the Local Programs Division of WSDOT

Issue No. 9 — September 1992

**ISTEA Amendments**

***Foreword***

The Transportation Appropriation Bill and the House Technical Corrections Bill (HR 5733) substantially impacts ISTEA. Many of the amendments appear to be beneficial and provide clarity to ISTEA while some amendments are entirely new to the Act. However, several make significant changes which can be viewed as not being in the best interests of Washington State.

Congress has announced an intended adjournment date of October 3 thereby leaving only three weeks after returning from their Labor Day recess to complete action on several appropriations bills including the Transportation Appropriation Bill which must go to Conference Committee and the House's ISTEA Technical Corrections Bill. The short period of time, combined with the fact that the Senate did not follow congressional procedures (corrective legislation is not supposed to be included in appropriation bills) when it included ISTEA amendments in the Senate Transportation Appropriation Bill, instead of passing a separate technical corrections bill. This makes it highly unlikely that technical corrections legislation will be approved during FY 92.

The ISTEA Team has reviewed the amendments contained in the Senate Transportation Bill and in the House Technical Corrections Bill which may impact WSDOT. For each amendment, staff has taken a position either in support or in opposition, and then has categorized each amendment as being a high, medium, or low priority.

This initial sorting of the amendments was presented to the WSDOT Executive Management meeting on September 2 for discussion regarding which amendments are of more importance to WSDOT and should therefore be most closely followed in the coming weeks.

Based upon the consensus reached at the WSDOT Executive Management meeting, the following legislative priorities were established.

***High Priority Amendments — Supported***

1. Allows Congestion Management/Air Quality (CM/AQ) funds to be used for any air quality improvement in an area which is nonattainment for ozone and/or carbon monoxide and for particulate matter resulting from transportation activities. (Section 129 of the ISTEA Technical Corrections Bill)
2. Allows the transportation authority to act on the quarterly obligation of STP. Does not clarify who makes the decision or who will perform this function. (Sections 122(a), (3) of the ISTEA Technical Corrections Bill)
3. Allows for a "state transportation revolving fund" for loans of federal funds to public or private entities. The amendment requires state matching be provided at the time of deposit of federal funds, but does not clarify how federal funds will be made available to the fund. Additional analysis will be required to determine its usefulness to the state of Washington. (Section 137 of the ISTEA Technical Corrections Bill)
4. Under the existing discretionary program, ferry boat and terminal facility grants were available only on routes designated as NHS segments. The proposed amendment would make the following changes to Section 129 of Title 23. (Senate FY 1993 Appropriations Bill)
   - Ferry routes eligible for the discretionary program could be classified as a public road. Any ferry route designated as a public road segment would be eligible for the grant program.

# Why Chemical Warning Labels?

Warning labels, found on all containers of hazardous chemicals in the workplace, provide much of the information you need to know to use hazardous chemicals safely. Understanding warning labels will help you handle and use these chemicals properly and avoid health and safety problems in the workplace.

## What's on a Warning Label

All warning labels show the name of the chemical; the name, address and phone number of the manufacturer or importer; and the chemical code number. All warning labels will contain one of three signal words that indicate just how dangerous the chemical is. Warning indicates a greater hazard than Caution does, while Danger indicates the highest level of hazard. Highly toxic chemicals will be labeled Poison.

The label will also contain information about physical hazards — if the chemical is flammable, explosive, corrosive and so forth. Health hazard information will list such dangers as eye, lung and skin irritation, burns or systemic illnesses.

## Other Information

Warning labels may also tell you how to store and dispose of the chemical properly: the type of container needed, how to dispose of chemicals and containers. The label may indicate precautions to take, such as how to clean up, what personal protection equipment to use with the chemical, and how to handle leaks or spills. First-aid instructions may include antidotes for poisons and what steps to take when someone is exposed to the chemical.

## Make Sure It's Labeled

Making certain that hazardous materials are properly labeled is a responsibility that all employees must share. Labels are required on all stationary containers. If you find a container with no label or with a torn or illegible label, report it to your supervisor immediately. Do not attempt to use or handle the chemical until you know for sure what it is. If you are carrying hazardous chemicals in a portable container that someone else might use, you should label the container to ensure the safety of other workers.

## Read the Label Each Time — Play it Safe

When health and safety are at stake, it pays to double-check. Always read the label whenever you use any hazardous chemical. Although you may have used the same chemical many times, the manufacturer may have changed the formula, or provided the wrong concentration. Avoid identifying chemicals by the label's color or design alone. If the label raises any questions in your mind about the appropriateness of your environment and protective equipment to deal with the hazardous chemical, check company policy or consult your supervisor before using the chemical. Taking responsibility for knowing the contents of chemical containers protects not only you, but also every other employee at your place of work.




***Always read the label whenever you use any hazardous chemical.***

# Roadway safety: where does it rank on your list of priorities?

Whether you are a construction or maintenance crew member, an engineer or technician, a supervisor, manager or other municipal official, roadway safety should be a primary objective.

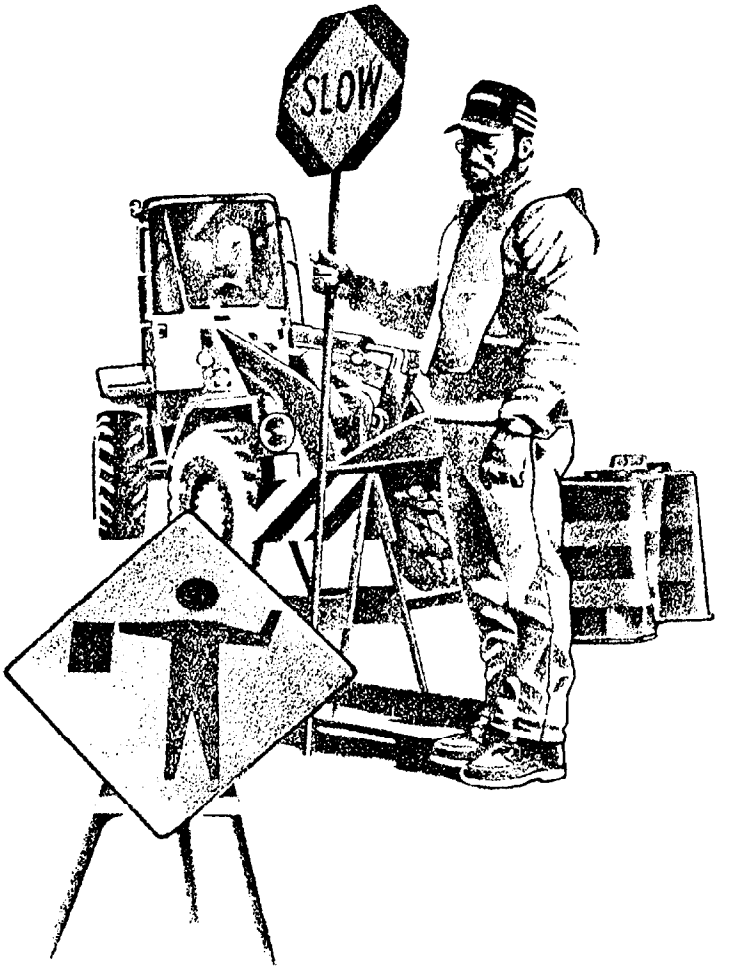
Employees who build and maintain a road system carry the responsibility for the safety of the people who use that road system and for reducing the risk and liability of their municipality.

Although many factors need to be considered in the complex process of planning, designing, operating, and maintaining a road system (cost, convenience and ease of travel, protection of the environment), safety should remain a primary goal.

Pavement surface, shoulders, side slopes, drainage ditches and structures, signing, sign supports, pavement markings and delineation, roadside and median barriers, bridge rails, crash cushions — all play important roles in providing a safe road system.

What can your municipality do to make roadway safety a priority?

- ❑ Recognize your responsibility for a safe road system, keeping in mind that drivers do have limitations and make mistakes.
- ❑ Conduct safety sessions for your work crews in equipment operations, construction/maintenance procedures, and work zone traffic control.
- ❑ Provide training for your work crews in understanding how the various road features (roadway and roadside elements and hardware) work and why they are used, and in proper installation and maintenance methods.
- ❑ Perform routine safety inspections of all roadway safety features, recording all inspection data and establishing a follow-up system for timely repair or replacement of all deficiencies.
- ❑ Investigate all accidents, particularly evaluating high accident areas, as to causes and possible preventive measures to be taken.
- ❑ Evaluate area of recurring maintenance or repair of safety features as to causes and possible preventive measures to be taken.




- ❑ Establish a formal road-safety program and form a safety committee to ensure that all your municipal employees constantly think safety in everything that they do, and learn to recognize and report any hazardous situations.

Remember. Keep roadway safety a primary objective in your municipality!

*(Source: "Moving Forward," Volume 6, Number 3, Pennsylvania Local Roads Program.)*

# Recycling Hits the Road

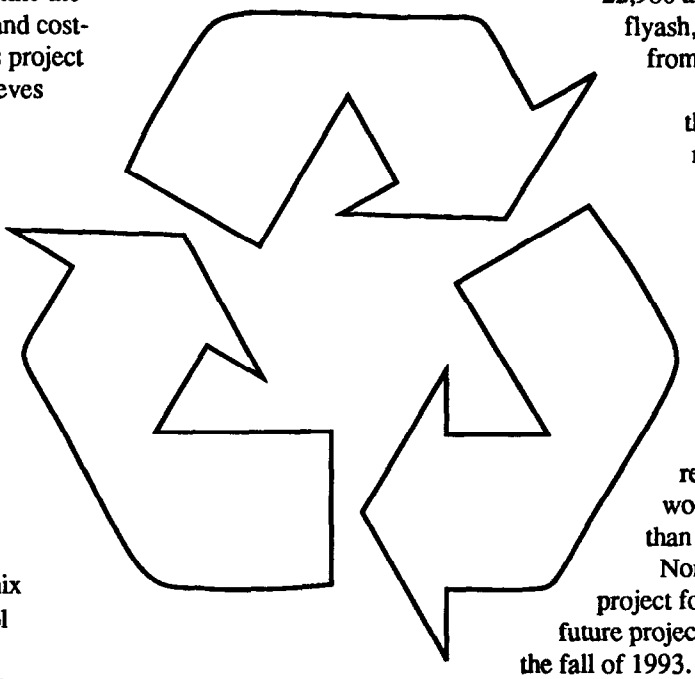
## *(Ideas from North Carolina)*

The North Carolina Department of Transportation (NCDOT) has joined the recycling effort and is using over 3 million pounds of recycled material in a test project on NC 54 near Carrboro. The project, a $6.8 million, 2.2-mile road widening, is unique in that it is incorporating numerous recycling and conservation efforts into a single project.

All NC state agencies were under mandate from the General Assembly to develop solid waste programs. NCDOT is monitoring the project to determine the constructability, maintainability, and cost-effectiveness of the program. This project was chosen because NCDOT believes that most of their projects in the future will be of a similar type — reconstruction and widening instead of new construction.

The following are highway construction items being used in this program:

- ❑ Plastic roadway delineators
- ❑ Plastic traffic barricades
- ❑ Plastic fence posts
- ❑ Plastic fence
- ❑ Shredded tires for embankments
- ❑ Whole tires in retaining walls
- ❑ Crumb rubber in the asphalt mix
- ❑ Wood chips for erosion control
- ❑ Leaf mould as plant mulch
- ❑ Refurbished traffic signal heads



In the newspaper articles written about the Highway Department's use of recycled material, the amounts of material were converted so the general public would understand them. For example, they are using over 130,000 pounds of steel, or enough to make 44 Ford Taurus automobiles; 1.8 million pounds of tires, enough to fill 48 tractor-trailers; 2,117 pounds of plastic, enough to make 1,440 1-gallon milk jugs and 7,263 2-liter soda bottles; 957 pounds of aluminum, enough for 22,980 aluminum cans. They are also using flyash, copper, glass, and wood chips from the clearing and grubbing.

NCDOT is getting support from the manufacturers of recycled/recyclable materials as well as from the Associated General Contractors. All of the recycled products have been given "experimental-status" approval by FHWA.

The added cost of the project due to the recycled materials is estimated to be around 1.5 percent, or $107,000. Some operations save money, like the tire retaining wall; while others, such as wood chip mulch, are more expensive than the typical project activity.

North Carolina will be monitoring the project for feasibility and applicability to future projects. It is scheduled for completion in the fall of 1993.

*(Source: "Environmental Exchange," Volume 13, Number 2, August 1992, by FHWA.)*

# Traffic Notes: Street Name Signs

*by Ed Lagergren, P.E.*

The Institute of Transportation Engineers (ITE) *Journal* for May 1992, contains an article written by Robert B. Carroll entitled *Street Name Sign Practices*. The article is a summary of a report by ITE Technical Council Committee 4A-26 to review the street name signing practices in the United States and Canada. The study concludes that agency interpretation of the *Manual on Uniform Traffic Control Devices* (MUTCD) and signing practices differ widely.

The study also found that agencies give street name signs the lowest priority for sign maintenance. Street signs help people know where they are and help them find their destination. They also assist emergency vehicle drivers to quickly find an address. The potential liability associated with these two purposes is viewed as low by most agencies. Most drivers have a low expectancy for street name signs; therefore, agencies receive the fewest complaints on street name signs. (Recently I did receive a complaint that street name signs were typically too small.)

What are the standards for street name signs? Street name signs have standards for shape, size, color, retroreflection, and placements. Agencies have taken many liberties in the interpretation of these standards. In the following paragraphs, I will offer my interpretation and recommendations on the standards in the MUTCD Section 2D-39 Street Name Sign (D3).

**Shape** — A rectangle with the longer dimension horizontal.

**Color** — White letters on a green background.

**Size** — The MUTCD states, "lettering should be at least 4 inches high and supplementary lettering to indicate type of street or section of city may be smaller lettering, at least 2 inches high." This should be considered the absolute minimum. The *WSDOT Sign Fabrication Manual* D3-101, minimum size, fits this criteria with the exception that the supplementary lettering is 3 inches high. Lettering is Series D. Lettering is all upper case for these small letter heights.

Street name signs placed overhead on signal standards are usually much larger. The *WSDOT Sign Fabrication Manual* D3-101, standard size, is used for this purpose. It is 16 inches high with 8-inch D letters for the street name and 6-inch D letters for the supplementary lettering. The MUTCD allows the use of upper and lower case letters for guide signs when the letter height exceeds 8 inches.

The vertical dimension of the sign is dependent upon the vehicle speed of the highway or street. The letter height of the sign is also dependent upon the vehicle driver's visual acuity. The old rule of thumb for sign legibility distance of 50 feet for each inch of letter height is currently being questioned. Some people think a better criterion would be 1 inch per 30 feet of distance.



**Placement** — The sign should be placed in accordance with the general mounting requirements in the MUTCD. The location of the sign and number of signs per intersection is agency dependent. The MUTCD states in Section 2D-39, "Street Name signs should be erected in urban areas at all street intersections ... and should be erected in rural districts to identify important roads not otherwise marked." Most agencies develop a system for consistent sign placement at intersections to help drivers easily find the signs.

Street name signs may be placed over stop signs although some traffic engineers do not do this because it distracts from the stop sign. The MUTCD Section 2B-4 Stop Sign (R1-1) prohibits use of secondary messages on a stop sign face. (At one time the words ARTERIAL, FOUR WAY, and other messages were placed on the sign face. They can still be seen occasionally in small towns.)

**Retroreflection** — All street name signs should be retroreflective.

There are many reasons agencies vary from these standards. Some agencies deviate based on the town or section of town motif, some prefer different colors (blue and white primarily), and some agency street name signs are simply old and do not meet today's standards. A certain amount of deviation can be acceptable in some circumstances. The basic function of the sign should always be retained.

I hope this article has helped generate an increased awareness of your street name signs. If you have any questions on this article or have a traffic concern, please give me a call at (206) 753-1073.

# Employee Development

## Educational Opportunities

*The purpose of this column is to inform you of the numerous educational opportunities that exist for our Washington State and adjacent states' transportation people. We also place this information on our electronic bulletin board.*

### Northwest Technology Transfer Center------(206) 753-0405

The $T^2$ center offers or supports numerous workshops of interest to public works agencies in Washington. Announcements are advertised in the newsletter, the Bulletin, and flyers are sent out to public works agencies requesting their interest prior to the workshops.

- ❑ **Risk Management IV — ISMA's Level 1 Work Zone Traffic Safety Special Certification.** October 20, Ramada Inn, Spokane; October 21, Cavanaugh's at Columbia Center, Kennewick; October 27, Best Western Tulalip Inn, Marysville; October 29, Red Lion Inn, Kelso. Cost $65.
- ❑ **On the Job Safety in Public Works.** November 18, 1992, Red Lion Inn, Spokane. (This is an APWA workshop hosted by the WA Chapter.) Cost $95 per member.

### Battelle ----------(206) 527-0542

Registrations for workshops are taken on first come, first served basis. Call Battelle for additional information.

- ❑ **Managing S/B Software Projects.** November 16-17, Seattle. Cost $885.
- ❑ **The Engineer as a Manager.** December 3-4, Seattle. Cost $885.
- ❑ **The Manager as a Leader.** December 7-9, Seattle. Cost $985.

### Asphalt Institute ----------(206) 786-5119

- ❑ **Asphalt Conference.** October 22, Moscow, Idaho. Contact Ed Schlect.
- ❑ **Asphalt Pavements Short Course.** October 26-30, Best Western Executive Inn Downtown Seattle. 3 days $440, 2 days $330.

### Washington State University----------(206) 840-4575

- ❑ **How to Apply Deming's Quality Improvement Principles to Public Service and Administrative Operations.** December 15 and 16, Seattle Airport Hilton. Cost $795.
- ❑ **Quality Improvement Tools for Project Teams.** December 3 and 4, 1992, Red Lion Inn Jantzen Beach, Portland. Cost $795.

### ASCE

- ❑ **Excavation Safety — How to Comply with OSHA's "Construction Standards for Excavation."** November 9, Seattle; November 10, Portland. Cost $345 members, $395 nonmembers. Audience: construction engineers, geotectonical engineers, project managers, contractors.
- ❑ **Understanding Wetlands and 404 Permitting.** November 5, Spokane. Cost $345 members, $395 others.
- ❑ **HEC-1 for Catchment Runoff Analysis.** December 3 through 5. Renton Voc-Tec Institute. Cost $795 for members, $895 for nonmembers.
- ❑ **How to Use Roller Compacted Concrete.** December 8, 1992, Radisson Hotel Seattle Airport. Cost $345 members, $395 nonmembers.

### Professional Engineering Practice Liaison Program (PEPL), University of Washington, College of Engineering ----------(206) 543-5539

(All classes are at the University of Washington unless otherwise noted.)

- ❑ **Managing People (Including Yourself) for Project Success.** Two Mondays per month, October 5 and 19; November 2 and 16; December 7 and 21; January 11 and 25; February 8 and 22. Cost $695.
- ❑ **Seismic Design of Structures I: Dynamic Analysis and Lateral Determination.** October 20, 22, 27, and 29; November 3, 5, 10, 12, 17, and 19 (4:30 p.m. to 6:30 p.m.). Cost $395.
- ❑ **Vapor Extraction System Design for Solid Waste and Leaking Underground Storage Tanks Sites.** November 2, 4, 9, 16, 18, and 23 (4:30 p.m. to 6:30 p.m.). Cost $395.
- ❑ **Avoidance and Resolution of Construction Delay Claims in Public Works Projects — The Owners Perspective.** November 20 (8:45 a.m. to 4:15 p.m.). Fort Worden Conference Center, Port Townsend. Cost $150.
- ❑ **Legal and Engineering Aspects of Traffic Accident Litigation.** December 1-2. Cost $335.
- ❑ **Use of Constructed Wetlands for Stormwater Treatment.** December 7, 8:30 a.m. to 4:30 p.m. Cost $165.

*Employee Development (continued)*

- ❑ **Site Monitoring Characterization and Remediation for Underground Storage Tank Installations.** December 9-10. Cost $335.

**American Management Assoc. ---------- 1-800-255-4141**

- ❑ **Coaching and Counseling Skills for Managers.** December 11, Spokane; December 15, Portland; December 16, Pasco; December 18, Seattle. Cost $125.

**National Business Women's Leadership Association ---------- 1-800-258-7246**

- ❑ **Leadership and Supervisory Skills for Women.** November 5, Bellevue; November 6, Tacoma; November 7 and 13, Seattle; November 11 and 19, Portland; November 12, Olympia; November 16, Spokane. Cost $69.

**APWA ---------- (312) 667-2200 ext. 511**

- ❑ **Management Practices — A Self Assessment Clinic.** November 19, Sheraton Portland Airport Hotel. Cost $99.

# Maintenance Workers Honored at "Road Schools"

Three WSDOT maintenance people received Distinguished Service Awards at the 30th Annual Road and Street Maintenance Supervisors' School on October 7 in Spokane. Awards are given each year for maintenance people in public works at this continuing education program sponsored by Washington State University. Congratulations are extended to the following:

- ❑ Tom Lambert, Maintenance Supervisor for WSDOT District 5
- ❑ Delles Blackburn, Equipment Mechanic II for WSDOT District 6
- ❑ William (Terry) Conner, Maintenance Lead Technician for WSDOT District 2

# Conferences and Meetings

- ❑ Road and Street Maintenance Supervisors School, October 6-8, Spokane Red Lion; November 4-6, Everett Pacific Hotel, Everett, contact Mary Carloye, WSU, (509) 335-3530.
- ❑ 3rd WA CEAL Conference. October 12 and 13, Westwater Inn, Olympia. Contact CRAB at (206) 753-5989.
- ❑ Northwest Concrete Pavement Short Courses and Seminar, October 13-16, 1992, Red Lion Columbia River Hotel, Portland, Oregon. Contact Jean Canfield, (206) 943-7732.
- ❑ APWA (WA) Fall Conference, October 13-16, Quality Inn, Clarkston, Washington. Contact Dave Mandyke, (509) 625-6320 or Jerry Copeland, (509) 575-6005.
- ❑ Asphalt Conference, October 22, Moscow, Idaho. Contact Ed Schlect, (206) 786-5119. Cost $30.
- ❑ Washington State Association of Counties Legislative Conference, November 11-13, 1992, Spokane-Sheraton.
- ❑ Sixth Annual 4R Conference and Road Show, December 6-8, 1992, Georgia World Congress Center, Altanta, Georgia. Contact Gillette Exposition Group, (708) 298-6649.
- ❑ 1993 Road Builder's Clinic, March 2-4, Coeur d'Alene, Idaho.
- ❑ Geosynthetics Conference, March 30-April 1, 1993, Vancouver, B.C. Contact (612) 222-2508 or 1-800-225-4324.
- ❑ Pacific Rim Transtech Conference, July 25-28, 1993, Seattle, Washington. For more information, contact James R. Buss, WSDOT, (206) 753-6014.

# Free Publications

*For Washington recipients only: Contact Donna Stallings at (206) 753-6119 or SCAN 234-6119 if you want publications.*

***Improving Guardrail Installations on Local Roads and Streets.*** U.S. Department of Transportation. This pamphlet is intended as a general guide to effective, low-cost methods of enhancing highway safety with guardrails (15 copies available).

***Roadside Improvements for Local Roads and Streets, FHWA.*** This is a brief 31-page guide for helping to improve safety on local roads and strteets (10 copies available).

***W-Beam Guardrail Repair and Maintenance, FHWA.*** This brief guide was prepared under the RTAP by the $T^2$ Center in Iowa. It is a very basic guide for recognizing extent of guardrail damage, the process for repairs, and consideration for safety (40 copies available).

***Special Report 87-15, Rating Unsurfaced Roads, USCOE.*** This brief guide has information on inspecting unpaved roads, defining deficiencies, and using a rating system which can be used to prioritize maintenance on these dirt or gravel roads (25 copies available).

***FHWA-SA-90-009, Highway Safety is No Accident, Safety Savvy.*** This pamphlet is designed to give drivers and pedestrians a better understanding of the important safety features built into our road system (40 copies available).

***FHWA-SA-90-012, The Forgiving Highway.*** This brochure explains how highways are designed to reduce the severity of run-off-the-road accidents (20 copies available).

# Scholarships Provided by Coral Sales

To promote the future growth of transportation engineers, the Coral Sales Company started a scholarship program in 1987. According to Kathleen Johnson, Vice President of the company, the scholarship program was one way by which the company could give something back to the industry and also help young students interested in a career in transportation.

Coral Sales, a successful material supplier of transportation safety products, provided 36 scholarships of $500 each during the 1991-1992 school year. Each school was awarded a minimum of two scholarships — 1 male student and 1 female student. At three colleges, scholarships were also given to students enrolled in construction management. The table shows the scholarships awarded to students in the 1991-1992 school year.

Mrs. Johnson noted that her company plans to continue the program by awarding a similar number of scholarships for the 1992-1993 school term.

*(Coral Sales Company is a distributor of highway safety hardware, including impact attenuators, guardrails, bridge rails, sign posts, break-away couplings, movable concrete barriers, gabions, and other materials. The company headquarters is 10560 SE Highway 212, P.O. Box 577, Clackamas, OR 97015.)*

**1991-1992 School Year Scholarships**

| | |
|---|---|
| Oregon State University | 2 CEs, 2 CMs |
| University of Portland | 2 CEs |
| Portland State University | 2 CEs |
| Oregon Institute of Technology | 2 CEs |
| University of Washington | 2 CEs, 2 Masters |
| Washington State University | 2 CEs |
| St. Martin's College | 2 CEs |
| Gonzaga University | 2 CEs |
| Walla Walla College | 2 CEs |
| University of Idaho | 2 CEs |
| Boise State University | 2 CMs |
| Montana State University | 2 CEs, 2 CMs |
| University of Alaska, Fairbanks | 2 CEs |
| University of Alaska, Anchorage | 2 CEs |
| University of British Columbia | 2 CEs |
| Total | 36 scholarships |

# Selected References

*The following can be obtained directly from the sources listed.*

***Hot Mix Asphalt Materials, Mixture Designs, and Construction.*** This new book by the National Asphalt Pavement Association (NAPA) with over 500 pages covers asphalt refining, uses, and properties; aggregates; HMA mixture design; asphalt mixture properties; equipment and construction; special mixtures, recycling, and additives; performance/distress of HMA. Available for $45 from NAPA Education Foundation, NAPA Building, 5100 Forbes Boulevard, Lanham, MD 20706-4413 or telephone (301) 731-4748.

***12 Tools for Improving Mobility and Managing Congestion.*** The Urban Land Institute created this booklet to build upon previous publications by identifying successful tools that are being used by many communities to reduce traffic congestion. A wide array of approaches and ideas are noted. Contact Urban Land Institute, 625 Indiana Avenue NW, Washington, DC 20004 or telephone 1-800-321-5011.

***Hot Mix Asphalt Paving Handbook.*** Covers the state of the art of asphalt paving operations including plant operations, transportation of materials, surface preparation, laydown, and compaction. It is aimed at field personnel who do the work and agency personnel who oversee and inspect the work. Available from APWA, PO Box 94310, Chicago, IL 60678-4310. Members $25, nonmembers $30.

***Tackling Gridlock.*** Shows how to improve traffic flow, increase traffic capacity, encourage mode shifts, and manage the traffic system. It makes the congestion problem less perplexing and provides public works administrators, decision makers, and other municipal officers with solutions. APWA. Members $20, nonmembers $30.

***Selection and Use of Engineering and Architectural Consultants: Guidelines for Public Agencies.*** APWA's Institute for Municipal Engineering's latest publication on how to work successfully with engineering and architectural consultants. $5.

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***Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect the views of WSDOT or FHWA. All references to proprietary items in this publication are not endorsements of any company or product.***

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